[x1, v1, z, y, x] = fun_element_1(x0, v0, @quadrupoleB1, ...

gB, q, dt, m, p1, n1, p2, n2, ye, nt)

Output:

x1(1), x1(2), x1(3)	end co-ordinates of particle, on exit plane of quadrupole
v1(1),v1(2),v1(3)	end velocity of particle, on exit plane of quadrupole
x(1),x(2),...	x value of endpoints of arcs along particle path
y(1),y(2),...	y value of endpoints of arcs along particle path
z(1),z(2),...	z value of endpoints of arcs along particle path

Input:

x0 = [x0x,x0y, x0z]	start co-ordinates of particle can be some distance before quadrupole
v0 = [vx, vy, vz]	start velocity of particle
gB	gradient of quadrupole (T/m)
q	charge of particle (C)
m	relativistic mass of particle (kg)
dt	time interval of each arc (s)
nt	maximum number of arcs to use in this function
ye =[yex,yey,yez]	reference direction of quadrupole
p1=[p1x,p1y,p1z]	point on entrance plane of quadrupole
n1=[n1x,n1y,n1z]	normal to entrance plane of quadrupole
p2=[p2x,p2y,p2z]	point on exit plane of quadrupole
n2=[n2x,n2y,n2z]	normal to exit plane of quadrupole

Require arc function files:

fun_element_1.m

fun_drift.m

fun_arc_2a.m

fun_arc_3b.m

quadrupoleB1.m

parallel.m

mag.m